THE CRUSHED STONE JOURNAL

Official Publication
The National Crushed Stone Association

In This Issue—

Thirteenth Annual Meeting Surpasses Expectations

Crushed Stone Industry Adopts Rules at Trade Practice Conference

Report on Standardization of Commercial Sizes of Crushed Stone

Simplification in Industry

Report of Committee on Mechanical Elimination of Dust

JANUARY, 1930

WHY HAVE LOSSES

Poor Grading—High Overhead—Troubles

Ask the following stone producers why they are using NIAGARA ROLLER BEARING SCREENS year after year

Solvay Process Company	Jamesville, N. Y.
Solvay Process Company	Syracuse, N. Y.
Rock-Cut Stone Company	Auburn, N. Y.
Rock-Cut Stone Company	Ballina, Madison Co., N. Y.
Rock-Cut Stone Company	Jamesville, N. Y.
Rock-Cut Stone Company	Lacona, N. Y.
Rock-Cut Stone Company	Watertown, N. Y.
Mohawk Limestone Products Company	Mohawk, N. Y.
Mohawk Limestone Products Company	Jordanville, N. Y.
Mohawk Limestone Products Company	Mount Vision, N. Y.
BUFFALO Crushed Stone Company	Buffalo, N. Y.
Federal Crushed Stone Company	Cheektowaga, N. Y.
Genesee Stone Products Company	Stafford, N. Y.
LeRoy Lime and Crushed Stone Company	LeRoy, N. Y.
Ribstone Concrete Products	LeRoy, N. Y.
Dolomite Products Company	Rochester, N. Y.
General Crushed Stone Company	Oaks Corners, N. Y.
General Crushed Stone Company	North LeRoy, N. Y.
General Crushed Stone Company	Glenmills, Penna.
Wagner Quarries	Sandusky, Ohio
Wagner Quarries	Castalia, Ohio
Dolomite, Inc.	Maple Grove, Ohio
Herzog and Sons	Forest, Ohio
Ohio Blue Limestone	Marion, Ohio
National Lime & Stone Co.	Spore, Ohio
National Lime & Stone Co.	Carey, Ohio
National Lime & Stone Co.	Lewisburg, Ohio
National Lime & Stone Co.	Bluffton, Ohio
Belle Center Stone Co.	Belle Center, Ohio
Higgins Stone Company	Bellevue, Ohio
Lake Erie Limestone Company	Youngstown, Ohio
Lake Erie Limestone Company	Lowellville, Ohio
Lake Erie Limestone Company	Hillsville, Pa.
Lima Stone Company	Lima, Ohio
Spencer Stone Company	Spencerville, Ohio
Union Limestone Company	Youngstown, Ohio
Ohio Marble Company	Piqua, Ohio
C. C. Beam	Melvin, Ohio
Rock Products Company	Toledo, Ohio
France Stone Company	Holland, Ohio
France Stone Company	Monroe, Mich.
Swint Stone Company	Fremont, Ohio
J. E. Baker Company	Bainbridge, Lancaster Co., Pa.
J. E. Baker Company	White Hall, Baltimore, Md.
New Castle Lime & Stone Company	New Castle, Pa.
New Castle Lime & Stone Company	Dunbar, Pa.
Lehigh Stone Company	Ormrod, Pa.
Stowe Trap Rock Company	Pottstown, Pa.
Carbon Limestone Company	Hillsville, Pa.
Blue Stone Quarry Company	Gwynedd Valley, Pa.
Whiterock Quarries	Pleasant Gap, Pa.
Connecticut Quarries Company	Rocky Hill, Conn.
New Haven Trap Rock Company	New Haven, Conn.
Edward Balf Company	Hartford, Conn.
John S. Lane and Son	Westfield, Mass.
West Roxbury Trap Rock Company	West Roxbury, Mass.
Old Colony Crushed Stone Company	Quincy, Mass.
Rowe Contracting Company	Malden, Mass.
Simbrico Stone Company	West Roxbury, Mass.
Casper Stolle Quarry & Construction Co.	East St. Louis, Ill.
Consumers Company	Lemont, Ill.
Federal Stone Company	LaGrange, Ill.
Michigan Limestone & Chemical Company	Rogers City, Michigan
Biesanz Stone Company	Winona, Minn.
Meshberger Bros. Stone Company	Berne, Ind.
Hy-Rock Products Company	Marengo, Ind.
Fanwood Stone Crushing & Quarry Co.	Fanwood, N. J.
Samuel Braen	Patterson, N. J.
Orange Quarry Company	West Orange, N. J.
Granite Rock Company	Logan, Calif.
Daniel Contracting Company	San Francisco, Calif.
Deitz Hill Development Company	Kansas City, Mo.
Rock Hill Quarries Company	St. Louis, Mo.
Texas Trap Rock Company	San Antonio, Texas
Dittlinger Lime Company	New Braunfels, Texas
James Stone Company	Corsicana, Texas
Franklin Limestone Company	Nashville, Tenn.
Gager Lime Company	Sherwood, Tenn.
John H. Wilson	Honolulu, Hawaii

CANADA

J. A. Bourbonnais	Vaudreuil, Que.
Canada Crushed Stone Corp.	Puslinch, Ont.
Coast Quarries	Vancouver, B. C.
Dufferin Construction Company	Innerkip, Ont.
Gordon Crushed Stone Company	Hagersville, Ont.
Thomas Langton Crushed Stone	Coldwater, Ont.
LaCie A. Desrosiers, Ltd.	Montreal, Que.
Puslinch Quarries, Ltd.	Puslinch, Ont.
Quinn Stone and Ore Company	Ft. William, Ont.
Rigand Granite Products Company	Rigand, Que.
Stone and Son	Ingersoll, Ont.
Standard Lime Company, Ltd.	Joliette, Que.
Walker Bros.	Thorold, Ont.
Warden King Company, Ltd.	Montreal, Que.

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HERCULES GELATIN L.F.—Dense and strong · plastic and water-resisting · first in fumes · same type and for same purposes as Gelatin Extra L.F. · an excellent gelatin explosive but needed only under severest conditions · has been replaced largely by Gelatin Extra L.F. at considerable saving · strengths: 20% to 90% · 184 cartridges.*

GELAMITE 2—Semi-plastic · water-resisting · bulkier than the gelatins · used for underground, quarry, and general purposes · often replaces gelatins up to 40% strength at saving in cost · 240 cartridges.*

HERCULES STRAIGHT NITROGLYCERIN L.F.—Strong · fast · water-resisting in higher strengths · used for shattering effect, for demolitions, mud-capping, submarine work, propagated ditch blasting · strengths: 15% to 60% · 208 cartridges.*

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HERCULES TORPEDO GELATIN—Replaces liquid nitroglycerin for shooting oil, gas, and water wells · strength: 80% · 196 cartridges.*

HERCULES BLASTING GELATIN—Water-resisting and powerful · valuable for submarine blasting, shooting gas or oil wells · 100% strength · 200 cartridges.*

HERCULES CONTRACTORS DYNAMITE—Low strength explosives for railroad and construction work where strong heaving action is desired · strengths: 5%, 10%, 15%, 20%, · 5% packed in 12½ lb. bags only, others 216 cartridges.*

HERCULES BLASTING POWDERS—"A": for blasting dimension stone in hard rock quarries · granulations (coarse to fine) C, F, 2F, 3F, 4F, 5F, 6F, 7F, and dust—"B": in coal mining, quarrying, road and railroad construction · 3C, 2C, C, F, 2F, 3F, 4F, and Herco—Herco: used in well-drill holes with Cordeau-Bickford detonating fuse · in certain formations effects economical blasting costs · packing: all powders packed in 25 lb. kegs.

*Note: Cartridge counts refer to the approximate number of 1¼" x 8" cartridges in 100 lbs. of the explosive.

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☐ Contractors Dynamite ☐ Blasting Powders

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Thirteenth Annual Meeting Surpasses Expectations

W. F. WISE RE-ELECTED PRESIDENT

"THE Thirteenth Annual Convention of the National Crushed Stone Association will please come to order," said President Wise, and thus was convened at the Hotel Gibson, Cincinnati, Ohio, on January 20, the most successful convention ever held in the history of the industry.

In attempting a brief description of this convention it seems impossible, if the truth is to be told, to avoid the use of superlatives and if in what follows we seem to have become the victim of such a temptation, charge it not to our desire to unduly exaggerate, but because the Thirteenth Annual Convention was "bigger and better than ever before."

The exceptionally well balanced program of speakers on technical subjects of particular interest to the crushed stone industry, as well as on topics of an inspirational and generally informative nature; the Manufacturers' Division Exposition of quarry equipment and machinery, which surpassed all previous efforts in this regard, both in number of exhibitors present and in the interest and completeness of individual exhibits; an unusually versatile program of entertainment exceedingly well executed; a hotel particularly suited to our requirements, and presided over by the most genial and hospitable of hosts; and last, but not least, the friendly atmosphere of camaraderie which permiated the entire meeting are some of the many things which contributed to the unanimous expressions of appreciation which were voiced from all sides.

An industry which can muster from all sections of the United States and Canada some six hundred delegates who have gathered together primarily for the purpose of exchanging ideas which would be mutually helpful and for discussions of those problems of vital concern to the industry is one in which we can well take pride. It would seem impossible for one to attend the Cincinnati Convention without being impressed with the fact that the crushed stone industry through its National Association is vigorously and energetically endeavoring in every way possible to promote the interests of the industry, and that in this undertaking it has the active and whole-hearted support of its members.

It is hardly within the scope of this brief article to give a detailed account of the Cincinnati meeting, particularly in view of the fact that preparations are already under way for the publication of the complete verbatim report of the entire convention. Consequently in the following an attempt will be made to bring out only the high points of the convention.

It will be regretfully remembered by all members of the Association that shortly before the annual meeting, A. R. Wilson, Western Regional Vice-President and member of the Board of Directors was taken from us. For many years past, with few exceptions it had been his custom to attend the annual meetings and although each year our contact with him was but for a few brief days, by his friendly smile, charming personality and deep sincerity, he quickly endeared himself to those who had the privilege of knowing him. President Wise, immediately following the formal opening of the Thirteenth Annual Convention, asked the assemblage to rise a moment in silent tribute to the memory of our friend and counselor, A. R. Wilson. As a more formal expression of the deep loss which his death had occasioned, the following resolution was unanimously adopted later during the meeting:

> Mr. A. R. Wilson of Watsonville, California, passed away during October, 1929. Mr. Wilson had long been a very active and interested member of the National Crushed Stone Association. The Association, assembled in convention in Cincinnati, Ohio, January 20 to 23, by unanimous action de-

W. F. WISE
Re-Elected President of National Crushed Stone Association

E. E. EVANS
White House Stone Company, Toledo, Ohio, who responded to the Address of Welcome

sires to record the high regard and great affection with which Mr. Wilson was held by all the members, and their sense of real personal loss which his passing away entails, and that the deepest sympathy is extended to his family in their trouble, and a copy of this resolution shall be sent to them.

The Honorable Russell Wilson, Mayor of Cincinnati, on behalf of the city welcomed the Association to Cincinnati in a delightfully entertaining address to which E. E. Evans, Whitehouse Stone Company, Toledo, Ohio, responded on behalf of the Association. The selection of Mr. Evans to discharge this honor seems particularly fortunate as he is affectionately regarded among the members of the Association as one of the originators in the movement to organize the crushed stone industry.

President Wise in his report to the Convention gave a comprehensive survey of Association activities during the past year and gratefully acknowledged the generous and helpful assistance which had been given him by the Board of Directors, the Executive Committee, the various Association committees and the Manufacturers' Division. He suggested that the activities of the Association might properly be further extended by the appointment of committees to assist members in matters pertaining to insurance rates, transportation and cost accounting. He stressed the immediate need, contingent only upon the necessary financial support from the membership of enlarging the Washington Staff to include a Bituminous Research Engineer. Many other matters of decided interest to the membership were covered by the President in his report which lack of space makes it impossible to mention. The full report, however, will be given in the published Proceedings and it is commended to you for a very careful reading.

The members of the Board of Directors in reporting business conditions during 1929 and the prospects for 1930, in most instances reported favorably on conditions during 1929 and it seemed to be the general opinion that an optimistic viewpoint should be taken as regards 1930.

The remainder of the opening session was devoted to the appointment of convention committees and to a report by Otho M. Graves on "Incorporation of Association." It will be recalled that at the Cleveland Convention it was voted to incorporate the Association for reasons more or less obvious and Mr. Graves in his report outlined the steps which had been taken directed toward this end and stated that after certain neces-

A. L. WORTHEN
Connecticut Quarries Company, who presided at the Monday Afternoon Session

sary matters which could only be done at the time of the annual meeting had been disposed of, the incorporation of the Association would be completed.

One of the most delightfully entertaining talks of the entire convention was given by The Honorable Myers Y. Cooper, Governor of Ohio, at the Greeting Luncheon held on Monday, and the Association is deeply indebted to him for his generous sacrifice of time in leaving his duties at Columbus in order to be with us.

At the general session on Monday afternoon, M. O. Garner, General Counsel, National Surety Company,

H. E. Bair
France Stone Company, Toledo, Ohio, who presided at Tuesday Morning Session

New York City, was to have been the first speaker and had for his subject, "To What Extent Does a Highway Bond Protect the Materials Producer." Mr. Garner was unavoidably prevented from attending the convention and Harold Williams, member of the Boston Bar and familiarly known to us for his excellent discussions at our previous conventions, in connection with the legal aspects of law suits resulting from alleged damage due to blasting, who was to have discussed this paper, most courteously and graciously offered to speak extemporaneously on the subject itself. As was to be expected from our previous experience with Mr. Williams, he contributed a most illuminating discussion which should be carefully read when it appears in the published Proceedings of the convention.

A paper entitled "Cooperation Between Producers and Construction Engineers" was given by Paul M. Tebbs, Assistant Chief Engineer, Pennsylvania Department of Highways, immediately following Mr. Williams' discussion. Mr. Tebbs advanced many ideas which should prove of decided value to crushed stone producers and lead to a better mutual understanding between producers and the various state highway departments.

For some time the Association has been endeavoring through its Sub-committee for the Standardization of Commercial Sizes of Crushed Stone to work out an acceptable solution to this perplexing problem and one of the most promising channels through which this might be accomplished is through the assistance of the Division of Simplified Practice of the United States Department of Commerce. Consequently the talk given by R. L. Lockwood of that Division on "Simplification in Industry" and the report of the Sub-committee for the Standardization of Commercial Sizes of Crushed Stone, by A. T. Goldbeck, Chairman, proved of unusual and timely interest and because of their importance are given in full elsewhere in this issue.

Of the other Sub-committee reports of the Committee on Standards, presented at the Monday afternoon session, that of the Sub-committee for the Standardization of Specifications and the Marking of Supplies and Equipment given by John Rice, Jr., Chairman, should prove of inestimable value to the membership. Without doubt by following the suggestions of this committee a real economic saving can be effected by the members in purchasing their supplies and equipment and we earnestly suggest that this report be given a careful study when it is available in the published Proceedings.

On Monday evening at 7.30 P. M., the Manufacturers' Division Exposition of Quarry Equipment and Machinery was formally opened with appropriate entertainment features. The entire Exposition was housed in the attractive ball room of the Gibson Hotel and it is difficult to imagine a setting more appropriate

A. G. SEITZ

General Crushed Stone Company, Syracuse, New York, who presided at the session for Operating Men, Superintendents and Manufacturers

for this feature of the annual meeting. Space does not permit of a detailed description of the Exposition in this issue but in passing it should be noted that there seemed to be a pronounced effort on the part of exhibitors this year to make their exhibits more interesting and instructive, an endeavor in which they evidently succeeded as evidenced by the unusual display of interest on the part of the delegates.

Following the opening of the Exposition, there was held at 9.30 P. M. amidst the most pleasant of surroundings provided by the famous Hotel Gibson Roof Garden, the annual Smoker. During the serving of a buffet supper a program of entertainment was given on the stage about which the tables were arranged, which by its versatility and excellence of execution won immediate approval as indicated by the spontaneous applause generously given throughout the evening.

On Tuesday morning the program was opened by an address entitled "Transportation—Past and Present" given by M. J. Gormley, Executive Vice-President and Chaiman, Car Service Division, of the American Railway Association. Mr. Gormley pointed out the many benefits which had resulted from cooperation between shippers and carriers and emphasized the necessity of a continuance of such cooperation. Our relationships with the American Railway Association have over many years been most friendly and helpful and it was a distinct pleasure and privilege to have Mr. Gormley address us.

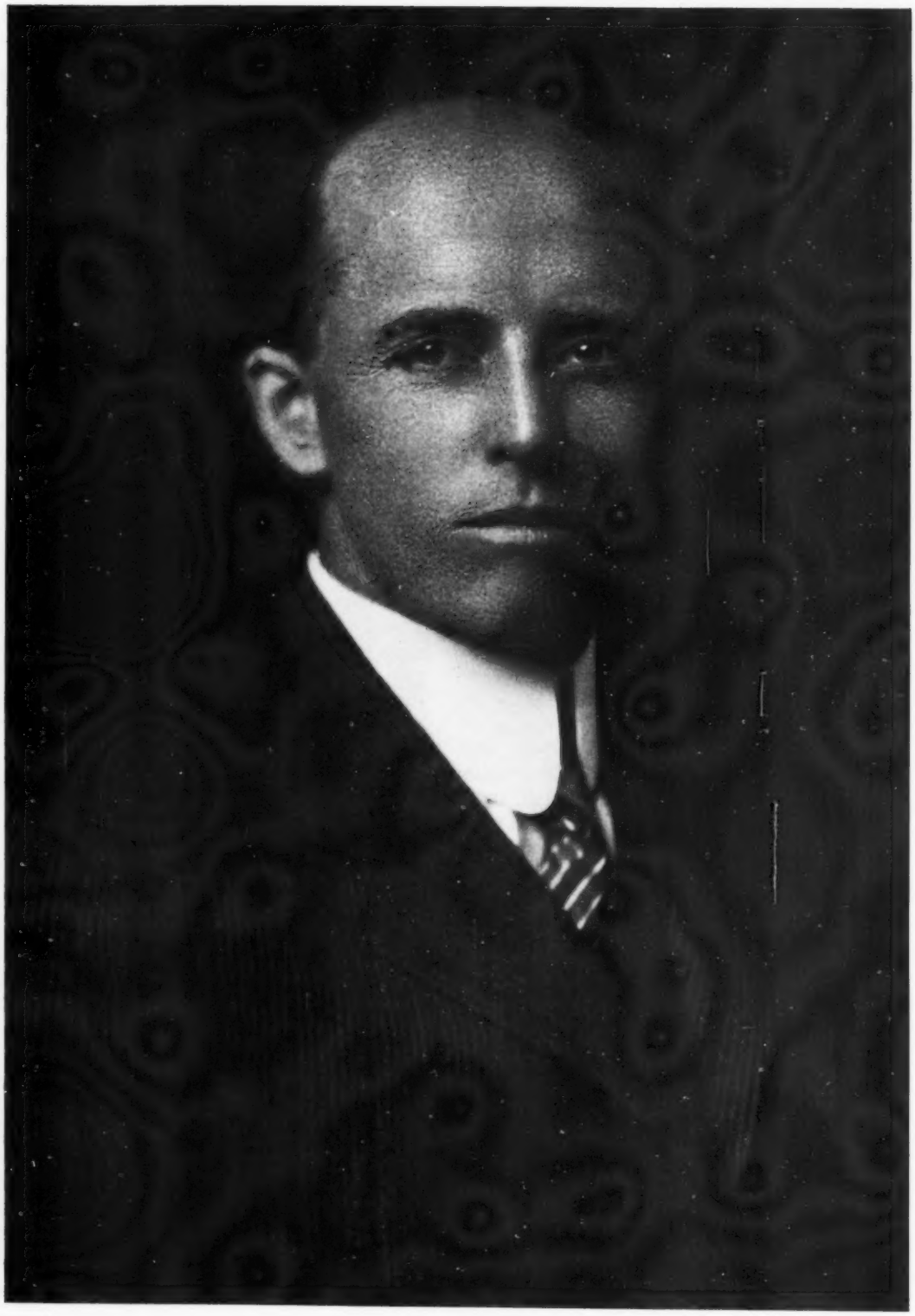
The Report of the Research Committee given by John W. Stull, Chairman, and the paper by Mr. Goldbeck, Director of the Bureau of Engineering on "Some Researches and Their Practical Application" were of absorbing interest, the more important parts of which will be subsequently published in the "Journal" and will of course be given in full in the Proceedings.

Of increasing interest to crushed stone producers is the question of pre-mixed and transit mixed concrete and therefore the paper by Arthur C. Avril, Avril Tru-Batch Concrete, Inc., of Cincinnati, on "Pre-Mixed Concrete" was a welcome addition to the convention program. His paper, supplemented by moving pictures, thoroughly covered the experiences of his company in this field of endeavor and should be particularly helpful to those interested in this rapidly developing phase of the aggregates industries.

Following the talk by Mr. Avril the reports of the Auditing Committee, Committee on Finance and final

WM. E. HILLIARD

New Haven Trap Rock Company, New Haven, Conn., who presided at the session devoted to the discussion of Sales Problems



F. T. GUCKER
Re-Elected Treasurer of the National Crushed Stone Association

report on Incorporation of the Association were heard, which concluded the Tuesday morning session. In passing it seems advisable to comment briefly upon the Report of the Finance Committee presented by A. L. Worthen, Chairman. Mr. Worthen and his Committee after making a most thorough and detailed study of the Association's financial situation, submitted as the most practical means for bringing about the necessary increase in revenue, a new scale of dues providing for a higher rate of payment than that as given under the scale approved at the Detroit Convention. A detailed discussion of finances is out of place in this review of the convention but it should be noted that the new scale as submitted was unanimously approved by the convention. A detailed presentation of this entire matter is being prepared by President Wise and will shortly go forward to all active member companies.

Departing from the procedure of the past few years of having simultaneous group sessions on Tuesday and Wednesday afternoons, made necessary by the time which had to be allowed for preparation for the Trade Practice Conference, such group meetings were held only on Tuesday afternoon for the following groups: Operating Men, Superintendents and Manufacturers, presided over by A. G. Seitz, General Crushed Stone Company; Sales Problems, presided over by Wm. E. Hilliard, New Haven Trap Rock Company and the Annual Meeting of the National Agstone Association, presided over by N. G. Farber, President. To the presiding officers of each of these group meetings much credit is due for the interesting and instructive programs which were presented. Many papers of timely interest were given and the reports of these three meetings should be read when available in published form.

During the business session of the National Agstone Association, the name of the organization was changed to The National Agricultural Limestone Products Association and the following officers and members of the Board of Directors were elected for the ensuing year.

President—N. G. Farber
Vice-President—Ellwood Gilbert
Secretary-Treasurer—W. H. Margraf

Board of Directors
For three year term:
Mr. Farber of New York
Mr. Gilbert of Pennsylvania
Mr. Heim of Ohio

For two year term:
Mr. Margraf of Ohio
Mr. Poorman of Ohio
Mr. Taylor of Michigan

For one year term:
Mr. Sprague of Pennsylvania
Mr. Burke of Ohio
Mr. Bolton of Ohio

The opening paper of the Wednesday morning session was delivered by Samuel A. Greely, of Pearse, Greeley and Hansen, Hydraulic and Sanitary Engineers, on "A survey of the Various Types of Sewage Treatment Works with Overall Costs and Comments on their Application." The possibilities of increasing the consumption of crushed stone through its use in the construction of sewage disposal plants is rapidly becoming better appreciated by our industry and Mr. Greeley's paper should constitute a valuable contribution to our literature covering this field.

Following Mr. Greely, F. H. Jackson, Senior Testing Engineer of the U. S. Bureau of Public Roads, well known to us for the excellent papers he has presented before our conventions in the past, lived up to the reputation he has established on previous occasions and gave a most interesting and informative talk on "Tests of Pavement Concrete Being Conducted by the Bureau of Public Roads."

N. G. FARBER
Re-elected President of the National Agricultural Limestone Products Association (formerly Nat'l Agstone Ass'n)

In addition to sewage disposal plants there is another field attracting the attention of crushed stone producers, namely, that of airport paving and on this subject R. H. Simpson, Chief Engineer, Department of Public Works, Columbus, Ohio, delivered a comprehensive and valuable paper.

ARTHUR S. LANE

John S. Lane & Son, Inc., Meriden, Conn., who presided at the Wednesday Afternoon Session

With increasing interest being developed throughout the country for an improvement in the secondary road system the paper, "The Development of County Roads" by Charles M. Upham, Engineer-Director, American Road Builders' Association was of exceptional interest. It will be remembered that the American Road Builders' Annual Convention and Road Show was held in Atlantic City during the week immediately preceding our Convention and it can therefore easily be appreciated that Mr. Upham, as busy as he must have been in closing up the affairs of his own Convention, made a real personal sacrifice in order to be with us at Cincinnati, and we are deeply grateful to him for the valuable contribution which he made to our convention program.

In connection with the report of the Committee on Resolutions of which John Rice was chairman, two resolutions were adopted which should prove of decided interest to the membership and are consequently given below:

Resolved, By the National Crushed Stone Association, assembled in Cincinnati for its Thirteenth Annual Convention, that they file with the Governors of the various states of the United States their most earnest protest against an unnecessary and unfair competition with the legitimate business which may be established in a prison, doubly hard as compared with almost any other industry because of low prices, and further pray discontinuance of the practice or at least no extension of such activity in the future.

* * * * * *

Resolved, That the National Crushed Stone Association urge Portland cement producers to recognize the regular commerical producers of aggregates as a new classification under which said producers of aggregates shall be entitled to purchase cement at wholesale prices when such cement is for resale only.

The Report of the Nominating Committee under the chairmanship of E. J. Krause was given by A. L. Worthen who acted as Secretary of the committee.

Following the Report there being no further nominations made, the Secretary was instructed to cast the unanimous ballot of the convention for the officers and members of the Board of Directors as recommended, which resulted in the election of the following:

President—W. F. Wise, Dallas, Texas

Regional Vice-Presidents:

C. M. Doolittle, Hamilton, Ont., Canada (Canadian)
Paul C. Graham, Long Beach, Cal. (Western)
Harry Landa, San Antonio, Texas (Southwestern)
A. S. Lane, Meriden, Conn. (Eastern)
Allen Patterson, Findlay, Ohio (Central)
W. R. Sanborn, Kankakee, Ill. (Northern)
T. I. Weston, Columbia, S. C. (Southern)
Porter W. Yett, Portland, Ore. (Northwestern)

Board of Directors:

W. F. Wise, Chairman, Dallas, Texas
W. M. Andrews, Youngstown, Ohio
H. E. Bair, Toledo, Ohio
A. J. Blair, Milwaukee, Wis.
W. W. Boxley, Roanoke, Va.
C. D. Brewer, Duluth, Minn.
L. R. Cartwright, Indianapolis, Ind.
O. P. Chamberlain, Chicago, Ill.
J. E. Cushing, Schenectady, N. Y.
C. M. Doolittle, Hamilton, Ont., Canada
F. O. Earnshaw, Youngstown, Ohio

E. Eikel, New Braunfels, Texas
E. E. Evans, Toledo, Ohio
Paul C. Graham, Long Beach, Calif.
Otho M. Graves, Easton, Pa.
F. T. Gucker, Norristown, Pa.
J. L. Heimlich, LeRoy, N. Y.
W. E. Hilliard, New Haven, Conn.
E. J. Krause, St. Louis, Mo.
Harry Landa, San Antonio, Texas
A. S. Lane, Meriden, Conn.
Thomas McCroskey, Knoxville, Tenn.
E. J. MacMahon, St. Louis, Mo.
A. C. O'Laughlin, Chicago, Ill.
Allen Patterson, Findlay, Ohio
E. U. Ragland, Raleigh, N. C.
Russell Rarey, Columbus, Ohio
John Rice, Easton, Pa.
H. E. Rodes, Nashville, Tenn.
W. R. Sanborn, Kankakee, Ill.
James Savage, Buffalo, N. Y.
F. W. Schmidt, Jr., Morristown, N. J.
J. F. Schroeder, Davenport, Iowa
W. L. Sporborg, Syracuse, N. Y.
J. W. Stull, Rocky Point, Va.
R. B. Tyler, Louisville, Ky.
Mortimer Wandell, New York City
T. I. Weston, Columbia, S. C.
G. J. Whelan, Cleveland, Ohio
A. L. Worthen, New Haven, Conn.
Porter W. Yett, Portland, Ore.
*H. M. Davison, Milwaukee, Wis.
*E. G. Lewis, New York City
*B. G. Shotton, Pittsburgh, Pa.

At the Board of Directors meeting held immediately following the Convention, F. T. Gucker, A. T. Goldbeck and J. R. Boyd were appointed to the respective offices of Treasurer, Director Bureau of Engineering and Secretary.

At the request of Chairman Graves, Messrs. Rice, Savage, Rodes and Hilliard escorted President Wise to the platform while the assemblage heartily applauded. Mr. Wise, on assuming the Chair, expressed his grateful appreciation for the distinct honor which had for the second time been conferred upon him and pledged his wholehearted support toward advancing the interests of the Association during 1930. He stated that such progress as had been made during 1929 was only possible because of the unselfish and generous support accorded him by the membership and expressed his confident belief that such cooperation would again be forthcoming during the present year. He emphasized the Association's need for additional finances in order to continue unabated the research work of the Bureau of Engineering and earnestly requested that the members increase their financial support to the Association in accordance with the new scale of dues adopted at this Convention.

The concluding session of the convention held on Wednesday afternoon was devoted to a discussion of the Trade Practice Conference to be held on the following day and to a Conference on Accident Prevention. No detailed account regarding the former is necessary as the results of the Conference are covered in full in a special article given elsewhere in this issue.

A number of most interesting papers had been prepared for presentation at the Accident Prevention Conference, but owing to the large amount of time necessarily devoted to a discussion of the Trade Practice Conference, it was not possible to have them presented. They will, however, appear in full in the published Proceedings.

C. M. DOOLITTLE
Canada Crushed Stone Corporation, who was to have presided at the Wednesday Afternoon Session but was prevented from attending

The feature of the Accident Prevention Conference was the formal presentation of the *Explosives Engi-*

*Representing the Manufacturers' Division.

neer's award to the member of the National Crushed Stone Association entered in the National Safety Competition obtaining the best accident prevention record for 1928. It will be recalled that the competition is held under the auspices of the United States Bureau of Mines and it was therefore hoped that W. Scott Turner, Director of the Bureau, would be able to make the presentation. Unfortunately, it was impossible for Mr. Turner to be present, but acting for him, J. J. Forbes, proved a most capable representative. With appropriate remarks Mr. Forbes presented the bronze trophy to M. P. Greer of the Cape Girardeau plant of the Marquette Cement Manufacturing Company, winner of the contest with the enviable record of having completed the year 1928 with no lost-time accidents and a total man-hours of exposure of 212,921.

RUSSELL RAREY
Marble-Cliff Quarries Company, Columbus Ohio, Toastmaster at the 13th Annual Banquet

Mr. Greer expressed the sincere thanks of his entire organization for the beautiful award which they had received and commended the National Crushed Stone Association for the active interest it was taking in accident prevention work.

Four other companies in the contest also completed the year with no lost time accidents and to these companies was awarded Honorable Mention in the order given as follows:

The Trap Rock Quarry at Birdsboro, Pennsylvania, operated by the John T. Dyer Quarry Company, which had a total exposure of 166,768 man-hours.

Louisville Cement-Rock Quarry at Speed, Indiana, 133,769 man-hours of exposure.

Bloomville Limestone Quarry at Bloomville, Ohio, operated by the France Company. This plant completed the year with a total exposure of 111,698 man-hours.

The limestone quarry at Spencer, Indiana, operated by the Mid-West Crushed Stone Company, 49,711 man-hours.

The climax of the Convention was reached on the occasion of the Annual Banquet held on Wednesday evening in the attractive Roof Garden of the Hotel Gibson. As Toastmaster for the occasion, the Program Committee exercised rare judgment in persuading Russell Rarey to accept this difficult task. Although

OTHO M. GRAVES
General Crushed Stone Company, Easton, Pa., who presided at the Greeting Luncheon on Monday and who was chairman of the Committee on Trade Practice

suffering from an attack of laryngitis, a handicap which would have discouraged most people, Mr. Rarey,

Among the ladies present at the 13th Annual Convention

by his quick wit and gracious introductions won immediate approval and is to be highly congratulated for the praiseworthy manner in which he discharged the arduous and exacting responsibilities of Toastmaster.

It is indeed infrequently that our audience has the good fortune to be entertained by such an array of excellent after-dinner speakers as graced the banquet platform of our Thirteenth Annual Convention, and to Mr. Burruss, Captain O'Hay and Mr. MacIlwain we are very deeply indebted for a most enjoyable and inspirational evening.

As the concluding part of the Banquet Program, the names of those active members who had turned in completed Exposition Contest Cards, were placed in a bowl and to the ten following persons whose names were drawn in succession the ten prizes were awarded:

1. M. Murray,
   The John T. Dyer Quarry Company,
   Norristown, Pa.
2. B. A. McKinney,
   West Roxbury Trap Rock Co.,
   Boston, Mass.
3. M. M. Bales,
   Elmhurst-Chicago Stone Company,
   Elmhurst, Ill.
4. F. H. Edwards,
   The Connecticut Quarries Co.,
   New Haven, Conn.
5. N. Phillips,
   The John T. Dyer Quarry Company,
   Norristown, Pa.
6. H. A. Rowan,
   John T. Dyer Quarry Company,
   Norristown, Pa.

7. Meredith Bovee,
General Crushed Stone Company,
Syracuse, N. Y.

8. F. C. Owens,
General Crushed Stone Company,
Syracuse, N. Y.

9. F. M. Howe,
LeRoy Lime & Crushed Stone Co.,
LeRoy, N. Y.

(Left) MRS. A. ACTON HALL, *Ohio Marble Co., Piqua, Ohio.*
(Right) Miss AMY V. PACE, *Cincinnati Tourist and Convention Bureau, who jointly arranged the excellent program of entertainment for the ladies*

10. Lisle Karch,
The John W. Karch Stone Company,
Celina, Ohio.

The prize for the most interesting exhibit as determined by the vote of the members participating in the card contest was awarded to the General Electric Company and they were presented with an appropriately inscribed silver loving cup. First and Second Honorable Mentions were accorded respectively to the Bucyrus-Erie-Woodford Engineering Company for their joint exhibit and to the Mack-International Truck Company. After awarding these prizes the Thirteenth Annual Banquet, destined to be remembered with most pleasant recollections for years to come, was concluded.

To close this article without a word of appreciation for the presiding officers of the various sessions who so helpfully assisted the President would indeed be remiss.

To Otho M. Graves, who with characteristic charm and graciousness of manner presided over the Greeting Luncheon on Monday; to A. L. Worthen, under whose capable direction the Monday afternoon session progressed smoothly to its conclusion; to H. E. Bair who so effectively presided over the Tuesday morning session; to A. G. Seitz and Wm. E. Hilliard who respectively presided over the sessions for Operating Men, Superintendents and Manufacturers and the Sales Group; and to A. S. Lane who assumed most successfully the difficult role of presiding upon short notice over the Wednesday afternoon session, as C. M. Doolittle who was scheduled to preside was prevented from being present due to the death of his mother; to each and every one of these gentlemen our heartfelt thanks are extended.

A debt of gratitude is also due Mrs. A. Acton Hall, in charge of entertainment for the ladies, and Miss Amy Pace, Manager of the Convention Bureau of the Cincinnati Chamber of Commerce, who jointly prepared and executed one of the most delightfully entertaining programs it has been the pleasure of the ladies to enjoy.

In closing this brief account of our Thirteenth Annual Convention, we wish to acknowledge our deep and sincere debt of gratitude to the distinguished speakers who paid us the signal honor of addressing our Convention. To the many Convention Committees and individuals who tirelessly and energetically worked for the success of the Convention our grateful appreciation is also extended.

Crushed Stone Industry Adopts Rules at Trade Practice Conference

AT a Trade Practice Conference for the Crushed Stone Industry called by the Federal Trade Commission at the Hotel Gibson, Cincinnati, Ohio, on January 23rd, rules pertaining to the conduct of the business of the Industry were adopted.

Almost a year ago to a day the National Crushed Stone Association at its convention in Cleveland authorized the appointment of a Trade Practice Committee to formulate proposed rules and to acquaint the Industry with their nature and purpose. The Committee held several meetings in Washington, and after exhaustive study, in which the guidance of Mr. Fowler and Dr. Baker of the United States Chamber of Commerce was most helpful, tentatively agreed upon certain resolutions which were later submitted to the Board of Directors at its meeting at Atlantic City on July 26th.

This meeting of the Board was attended by Mr. Fowler and Col. Flannery of the Federal Trade Commission and after almost two days of study and criticism, the Board approved the rules as submitted and recommended that the Industry be fully informed concerning them.

Between that date and the convention in Cincinnati, articles appeared not only in *The Crushed Stone Journal*, but in the several trade publications and two pamphlets were broadcast to the Industry, one a reprint of an address of Col. Nelson P. Gaskill, former member of the Federal Trade Commission, and the other by the chairman of the Trade Practice Committee. It is believed that reasonable publicity throughout the Industry was in this manner given not only to the rules themselves, but to the wisdom of adopting such regulations as might ultimately be approved and sanctioned by the Federal Trade Commission.

On Tuesday afternoon during the Cincinnati convention, the Trade Practice Committee held an open meeting requesting that all those who cared to offer an opinion as to the wisdom of the procedure being followed, or as to detailed criticism of the rules, appear. Some forty persons were present and for several hours a helpful and vigorous discussion ensued.

The Committee reported to the entire convention the next afternoon and submitted the proposed list. The discussion was not only general, but showed keen insight and a comprehensive knowledge of the subject by those who participated.

As a result of this discussion, the Committee met that evening with Harold Williams of the Boston Bar, Mr. Fowler of the Chamber of Commerce and Mr. McCorkle of the Federal Trade Commission, and revised and modified certain of the rules. It was decided not to present to the Industry rules 11, 12 and 13 as embodied in the report of the Trade Practice Committee, but to omit these rules entirely.

At the Trade Practice Conference of the Industry held the following day, January 23rd, Judge McCulloch, Chairman of the Federal Trade Commission presided. Mr. McCorkle of the Commission was also present, as were Mr. Williams and Mr. Fowler. It was estimated that well in excess of 50% of the production of the Industry was represented at the meeting. Otho M. Graves was elected Secretary of the conference. The rules were presented separately and after discussion in each case, with particularly helpful clarifying comment by Judge McCulloch, were adopted. The rules as adopted are as follows:

1. "Resolved: That the willful interference by any person, firm, corporation or association by any means or device whatsoever, with any existing contract between a seller and a purchaser, in or about the production, manufacture, transportation, purchase or sale of any product handled by the industry, or the performance of any contractual duty or service connected therewith, such interference being for the purpose or with the effect of dissipating, destroying or appropriating, in whole or in part, the patronage, property or business of another engaged in such industry, is an unfair trade practice."

2. "Resolved: That the false marking or branding of products of the industry with the effect of misleading or deceiving purchasers with respect to the quantity, quality, size, grade or substance of the materials purchased, is an unfair trade practice."

3. "Resolved: That the sale or offering for sale of any product of the industry accompanied by misrepresentations calculated to deceive customers or prospective customers as to the quantity, quality, size, grade or substance of such product, is an unfair trade practice."

4. "Resolved: That the secret prepayment of transportation charges and or the secret payment or allowance of rebates, refunds, credits, or unearned discounts, whether in the form

of money or otherwise, or the giving of premiums, or extending to certain purchasers special service or privilege not extended to all purchasers under like terms and conditions, is an unfair trade practice."

5. "Resolved: That any discrimination in price between the purchasers of the same class, not including discrimination in price on account of the difference in grade, quality, or quantity of the product sold, or which makes only due allowance for difference in cost of selling and transportation, or discrimination in price in the same or different communities made in good faith to meet competition, where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly, is an unfair trade practice."

6. "Resolved: Freight and trucking charges are necessarily reflected in price, and the practice on the part of sellers of requiring purchasers in some instances to pay such charges and in other instances of assuming such charges causes discrimination in price and the failure of the seller to require the purchaser in each instance to pay the charges for freight and trucking is condemned by the industry."

7. "Resolved: That defamation of a competitor by words or acts imputing to him dishonorable conduct, inability to perform contracts, or questionable credit standing, or the false disparagement of the grade or quality of his materials, is an unfair trade practice."

8. "Resolved: That the selling of goods below cost for the purpose of injuring a competitor and or with the effect of lessening competition is an unfair trade practice."

9. "Resolved: That the secret paying or promising to pay, to an employee of a customer or prospective customer, without the knowledge of his employer, of a commission or consideration of any character for the purpose of inducing or compensating for a sale, is an unfair trade practice."

10. "Resolved: That the offering or giving of commissions, prizes, premiums, gifts or excessive entertainment to anyone in connection with the sale, purchase or use of any product distributed by manufacturers within the industry, or as an inducement thereto, is condemned by the industry."

11. "Resolved: That the enticement of employees from a competitor for the purpose of interfering with his business is an unfair trade practice."

12. "Resolved: That the industry hereby records its approval of the practice of each individual independently publishing his prices and terms of sale to the purchasing trade. The publication of fictitious prices and terms of sale by a manufacturer for the purpose of misleading the trade and the public is condemned by the industry."

13. "Resolved: That the Crushed Stone Industry, assembled in Trade Practice Conference, with Judge McCulloch of the Federal Trade Commission presiding, and with Mr. McCorkle of the Commission present, on January 23, 1930, authorizes the National Crushed Stone Association to take such steps as may be necessary to appoint a Committee on Trade Practices to investigate and determine whether these resolutions are being observed, to make complaints concerning alleged violations, to cooperate with the Federal Trade Commission, and generally to perform such other acts as may be reasonably necessary and proper to put these resolutions into effect and to accomplish the objects and purposes of this Conference."

A certified copy of the resolutions have been transmitted through Judge McCulloch to the Federal Trade Commission, and in due time the Industry will be informed as to the action of the Commission.

The Commission may approve the rules as submitted or may request certain modifications, though it is belived that the rules were so carefully prepared with due regard to the attitude of the Commission, that they will probably be approved as submitted, although this is merely an opinion.

It is not held that the adoption of these rules, assuming that they are approved by the Commission, will revolutionize in any respect the conduct of the business of the Industry. It is reasonable to believe, however, that the concentration of thought of the entire Industry on the distinction between legal and ethical practices on the one hand and unfair trade practices on the other will tend toward a fairer and cleaner trade relationship to the benefit of the entire industry.

The clear purpose of rule 13 is the establishment of a Committee of the National Crushed Stone Association to assist in the observance of these resolutions, to cooperate with the Federal Trade Commission and to perform such other actions as may be reasonably necessary and proper to put these resolutions into effect and to accomplish the objects and purposes of this conference.

A somewhat similar rule adopted by the Lime Association was rejected by the Federal Trade Commission, but it is believed that the phraseology of rule 13 is such as to render it acceptable to the Commission.

Obviously the usefulness of these rules to the Industry will largely depend upon the sympathetic and intelligent manner in which the Committee appointed under rule 13 fulfilles its duties and responsibilities. It is apparently generally thought throughout the Industry that the adoption of these rules is a constructively progressive step toward ridding the Industry of unfair and unethical practices.

It is hoped that other mineral aggregate industries will take similar action so that the entire mineral aggregate field may subscribe to common standards of ethical business conduct.

Report of the Sub-Committee for Standardization of Commercial Sizes of Crushed Stone

A. T. GOLDBECK, *Chairman*

LAST year your committee submitted a report which was published in a pamphlet entitled, "Reports of Officers of the Association." This report discussed the status of standardization of commercial sizes as it then existed.

It was explained that the one great stumbling block mitigating against standardization was the fact that two kinds of laboratory screens were in use for measuring the size of stone, one employing square openings, the other round openings. They do not give the same results and they are not convertible one into the other. This is a testing matter which must be worked out by testing engineers.

Meanwhile the crushed stone industry need not mark time awaiting the outcome of the settlement of the method of testing stone for size. They can proceed with a certain amount of standardization within their industry. It was with this idea in view that a questionnaire was sent out by your committee during the past year. Answers to this questionnaire were received from approximately 100 plants. In all cases they were not sufficiently clear or complete to be included in the committee's analysis and when there was any doubt whatever these particular answers were omitted.

The questions, their analysis and a discussion by the committee follow:

Question 1. Do you use round or square openings in your plant screens? Give their size, also whether revolving, vibrating or shaking screens. The answers to this question may be summarized as follows:

Discussion of Question No. 1

No doubt still other sizes are employed than have been included in the answers received and the questionnaires showed that some rectangular screen openings are also being used.

In all probability the sizes of screens reported are those most largely used by the crushed stone industry and certainly they include a wide enough variety of sizes to produce all the crushed stone used commercially. In any given locality relatively few of these sizes would be necessary to produce stone entirely satisfactory for the purposes intended. Judging from the secondary group, those used to a lesser extent, a

SUMMARY OF REPLIES TO QUESTION 1

Screens Most Largely Used

Revolving		Vibrating		Shaking	
Round (in.)	Square (in.)	Round (in.)	Square (in.)	Round (in.)	Square (in.)
3 1/2 (10)			1 (6)		
3 (17)			3/4 (6)		
2 3/4 (14)			5/8 (6)		
2 1/2 (19)			3/8 (6)		
2 1/4 (10)			1/2 (10)		
2 (18)			1/8 (6)		
1 3/4 (9)					
1 1/2 (19)					
1 1/4 (23)					
1 (17)					
3/4 (19)					
7/8 (5)					
5/8 (10)					
3/8 (5)					
1/2 (8)					
1/4 (10)					

(Note: The numbers in parentheses indicate the number of screens of the size reported).

Screens Used to a Lesser Extent

Revolving		Vibrating		Shaking	
Round (in.)	Square (in.)	Round (in.)	Square (in.)	Round (in.)	Square (in.)
6 (1)	3 3/4 (1)	3/8 (1)	2 1/2 (3)	2 (1)	
4 1/2 (2)	3 (1)	1/4 (1)	2 1/4 (1)	1 1/2 (1)	
4 1/4 (2)	2 3/4 (2)	3/16 (1)		1 1/4 (1)	
4 (3)	2 1/2 (2)		2 (3)	1 1/8 (1)	
3 (1)	2 1/4 (2)		1 1/2 (4)	1 (1)	
2 5/8 (1)	2 1/8 (1)		1 1/4 (4)	3/4 (2)	
2 3/8 (1)	2 (2)		7/8 (3)	5/8 (1)	
1 5/8 (3)	1 3/4 (2)		9/16 (1)	1/2 (3)	
1 3/8 (1)	1 1/2 (2)		5/16 (4)	3/8 (2)	
1 3/16 (1)	1 1/4 (1)		3/16 (3)	1/4 (2)	
1 1/8 (2)	1 1/8 (1)			1/8 (1)	
1 1/16 (1)	1 (3)		#2 (1)		
5/16 (2)	13/16 (1)		#20 (1)	#4 (1)	
3/16 (2)	3/4 (1)				
	11/16 (1)				
	9/16 (2)				
	1/2 (4)				
	3/8 (1)				
	5/16 (1)				
	1/4 (1)				
	3/16 (2)				

(Note: The numbers in parentheses indicate the number of screens of the size reported).

number of screen sizes might be discarded without any detriment to the usefulness of the stone produced.

Question 2. How are your different sizes of stone now designated?

Summary of Replies to Question 2

The answers to this question show a chaotic state of affairs. There seems to be no standard in universal use. Various systems of designating size of stone are now employed of which the following are typical:

1. A system of numbers is employed such as Nos. 1, 2, 3, etc., each number indicating a given size. Sometimes No. 1 means a large size such as 3 in. to 4½ in. and the sizes decrease as the numbers progress. Even when this system is used the same sizes are indicated by different numbers in different sections of the country. In some sections the No. 1 size is the smallest size produced such as 0 to ⅛ in. and the sizes increase with the ascending numbers.

2. The size is designated by some descriptive term such as Class A concrete, Class B concrete, Class C concrete, stone chips, bituminous macadam surfacing, etc.

3. The size is designated by the average size of the stone or by some size intermediate between the largest and the smallest. Thus ¾ in. stone may mean stone passing the 1¼ in. and retained on the ½ in.

4. The maximum size is used to indicate the size. Thus, under this system 1½ in. stone may mean stone extending from 1½ to ½ in.

5. The size is stated in terms of the limiting sizes, thus ¼-1 in. means material comprising all sizes between these limits. A variation in this method of stating sizes is to state the maximum size first, thus 1-1¼ in. size.

No doubt there are many other systems for designating the size of stone with variations within those systems. This fact is clear; where several systems of nomenclature exist in a given locality, misunderstandings are bound to arise and they do, very often. It would seem to be very desirable to have a uniform system of nomenclature for use throughout the United States and Canada, and this perhaps is the very first step which should be taken preparatory to the standardization of sizes of stone.

In analyzing the questionnaires it is evident that the method used for testing sizes is not uniform, for some laboratories use round openings, others square openings in their testing screens. A given size of square opening permits larger material to pass through than the same diameter of round opening and this fact must be borne in mind in connection with this entire matter of size standardization.

Question 3. Would you be favorable to the designation of size in terms of the minimum and maximum size of stone, thus ¼-1¼ in., ¼-2½, etc., instead of by your present scheme of designation?

Summary of Replies to Question 3

To this question 54 replies in the affirmative and 12 in the negative were received.

Discussion of Question 3

A number of quarries are already using this scheme of designation and the Southwestern Division of the Association has recently adopted it except that the maximum size is stated first, thus, 1¼-¼ in., etc.

Reasons for Voting "No."

Customers know present sizes.

Prefer sizes designated by number.

Prefer statement of size in terms of single diameter such as 1 in., etc.

Have to meet present state specifications. (Does not seem to be a valid objection).

Prefer maximum size designation.

Your committee feels that the affirmative vote is convincing and it recommends that the National Crushed Stone Association adopt as a standard the method of designating the commercial size of stone which states the size in terms of the minimum and maximum size, thus, ¼-1¼, ¼-2½, etc.

The question of square vs. round opening screens is left open for the present, awaiting developments in organizations such as the American Society for Testing Materials and the American Association of State Highway Officials. Your committee, however, through its questionnaire has asked for an expression of your preference in the matter of square vs. round opening testing screens.

Question 4. Have you any preference for the shape of opening in the laboratory screen used for testing your product—round or square?

Summary of Replies to Question 4

The preference expressed in answer to this question is as follows: round—23, square—18 and no preference—48. One producer believes from 1 in. down should be square, the rest round (probably influenced by set-up in his plant). Another producer believes screens should be square because plant screens are trending that way. Still others believe ¼ in. and finer should be square and the rest round. Two others think the laboratory screens should conform to commercial practice. It is evident that there is no decided preference for any particular shape of opening in the laboratory screen used for testing the size of stone.

Discussion of Question 4

Your committee desires to point out that tests have been made by a special sub-committee of Committee E-1 of the A. S. T. M. to determine the relationship which might exist between square and round hole laboratory screens. Briefly, they find that no definite relationship does exist. That is to say, any particular size of round hole has no definite equivalent size of square hole. The reason for this lack of relationship lies in the varying angularity of the material screened. For illustration, when material is very angular, a larger size will pass through the diagonal of a square mesh screen than will pass through a round opening screen of the same diameter. Spherical material, on the other hand, will have about the same gradation irrespective of the shape of opening. The effect of using square mesh instead of round openings is to permit stone of a given mechanical analysis to be somewhat larger in size than rounded material of the same mechanical analysis.

Fine aggregate must be tested with square mesh screens so that if round openings are used for the larger sizes there results a double standard for size determination. Your committee feels that some advantage would obtain if this complication were eliminated and the square mesh testing screens were used throughout the entire range of sizes. It is again pointed out that this does not necessitate any change whatever in the shape of openings used in plant screens.

Question 5. Do you feel that the following sizes could be produced with profit in your plant? 0-¼, 0-½, 0-¾, ¼-½, ¼-¾, ¼-1¼, ¼-2, ¼-2½, ½-1, ¾-1¼, 1¼-2½, 2½-3½ or 4. (*Stated in terms of round opening laboratory screens*).

Summary of Replies to Question 5

To this question there were 17 affirmative answers; 7 preferred substitute sizes, while 46 stated their preference for fewer sizes.

Discussion of Question 5

In discussing this question your committee would point out that construction work demands stone of certain sizes which are best suited for the particular kinds of work involved. It is a fundamental axiom in the success of an industry that it must produce material which satisfies consumers. The consumers of aggregates, however, are prone to specify in adjacent localities slight variations in size for the same grade of work which could just as well be accomplished by a single size standard. It is for the purpose of elimi-

(*Continued on page* 26)

Simplification In Industry[1]

By R. L. Lockwood,
Division of Simplified Practice,
U. S. Bureau of Standards, Washington, D. C.

THE report of your Sub-Committee for Standardization of Commercial Sizes of Crushed Stone mentions that when you have made sufficient progress to work out a definite plan you expect to call on the Division of Simplified Practice of the Department of Commerce for its cooperation. Mr. Goldbeck very kindly showed me a copy of that report, and I have read it with a great deal of interest. It seems to me that you have made considerable progress along those lines.

Before going into any detail on the matter contained in your report, I think it might be advisable for me to give you an idea of just what this Division of Simplified Practice does, what it is there for. The Division was organized, as some of you may know, by President Hoover, when he was Secretary of Commerce. It was organized as a direct result of a survey made under his supervision of waste in industry. The results of that survey showed an amount of avoidable waste in industry that astonished everybody who read that report.

There was no central agency anywhere to act as a clearing house or coordinating agency in trying to eliminate some of this avoidable waste, and Mr. Hoover, when he became Secretary of Commerce, felt that might perhaps be a proper function of the Department of Commerce. He has, you know, interpreted the functions of the Department of Commerce pretty broadly. He visions its objective as any activity which tends to promote the trade in commerce and industry of the United States. That is a pretty broad field in which to work.

This field of waste elimination apparently offered one of the best objectives that a division of the Department of Commerce could undertake to handle. Consequently, this Division was organized, not as a directing or dictating or suggestion or police agency of any sort, but merely as a coordinating centralizing agency to work with industry and with commercial organizations in waste elimination. That was the broad line on which the theory of the division was laid out.

The Division began work about eight years ago, and during the last eight years of its activity has confined its work almost wholly to the elimination of waste in manufactered products. Its work is confused a good deal with technical standardization. In fact, the word standardization itself is used rather loosely to express a very broad field of activity. There are really two kinds of standardization.

Merely for purposes of definition, we have made a distinction, or tried to make a distinction between purely technical standardization and what we call commercial standardization or simplified practice. I will try to explain that distinction to you as briefly and directly as possible, because it is very important in trying to give you an understanding of what we do.

Technical Standardization is primarily creative. Its job is to set up and determine standards of size or design or performance or anything you please, and put those into use, if possible.

Commercial standardization or simplification, on the other hand, is a job of selection, not of creation. It is a job of studying existing standards and collecting from among those existing standards the ones which are most important for commercial reasons, concentrating on those products so far as possible and eliminating others or regarding them as special.

The Division never has had and doesn't want any selection power or regulatory power whatever. It doesn't want to even suggest any definite things to be done. The men in an industry know the needs of that industry very much better than anybody outside. Consequently our work has been almost wholly that of a sales agency. We have not undertaken to formulate simplified practice projects, nor to determine what standards ought to be adopted by a given industry.

We have usually worked with the manufacturers of a certain product, occasionally with the distributors, and less usually with the users. We have cooperated with them in formulating what we call a simplified practice project; that is, a list of standards or stock sizes of items or commodities which they think are most important. And then we have used our best efforts to sell those ideas formulated by the industry itself to all other groups in the industry.

[1] Presented at the Thirteenth Annual Convention of the National Crushed Stone Association, Hotel Gibson, Cincinnati, Ohio, January 20, 1930.

Perhaps in order to show you first the distinction between simplification and standardization, and later how simplification works, I can begin by giving you an illustration in a field that is very familiar to all of us. Take the field of railroad equipment. Take the simple item of a track gauge, the standardization of the track gauge.

Standardization in a technical sense would consist in the determination by engineers as to how far apart the rails should be. Now in the early days of railroading every railroad made its own arrangements. There was no such thing as the national standard guage. That was a long time ago, long before interline business and car exchange business developed at all. But when such business did develop, it was necessary for the railroads to get together and establish some sort of standard gauge so the cars could travel equally well over any line of railroad.

That meant the standardization or selection from the different guages existing of one which was most adaptable to general use. From the point of view of the simplified practice, it didn't matter whether the guages between rails were 4½ feet or 6 feet 11 inches. The important thing was to have them uniform, so the cars of one road could travel on the other road.

The same thing applied to a good many other things. Simplified practice is really a new phrase for one of the oldest activities in the world. Every manufacturer knows perfectly well that other things being equal, it costs less to make things alike than to make them different.

There are a great many other factors that enter into production besides that one question of uniformity. Consequently we can't reduce every manufactured product to one size or one kind, not by several degrees. But we find an enormous number of manufactured products that we can reduce. When I say "we" I mean the Division of Simplified Practice cooperating with the industry itself, working out a program that reduces the number of sizes or varieties of manufactured products.

In our eight years of existence we have had considerable success along that line. In order to give you an idea of how it works in practice, I might give you one simplification example which is more or less a classic. It happened to be the first one we undertook.

For a year or two after Mr. Hoover had notified industry and commercial activities there was a Division of Simplified Practice, we waited around for some business. People were very suspicious of any suggestions that came out of Washington, around the year 1921, and it was a long time before we had any request for our service, with the exception of individual companies.

The first one that actually went through was a simplification job for vitrified paving brick. The paving brick industry claimed to be in the red. They came down to see the Secretary of Commerce and see if something couldn't be done about it. Mr. Hoover talked it over with them at some length and said, "The first thing to do is to make a survey of your industry and find out how many different kinds of your product are made or sold, and figure out the percentage of each size or variety actually sold in this country."

There were a great many manufacturers of paving brick, but an enormous percentage of them cooperated. They got a set of survey figures which really represented about 90 per cent of the paving brick production in the country, or more. That survey was tabulated by us without disclosing the figures to any individual manufacturer. It listed sixty-six sizes of paving brick made and sold in the United States, with the percentage of each one sold. We suggested to them that they tabulate those percentages in the order of their importance, taking the highest percentage first, and so on down the line to the small ones, and accumulate the totals as they went along, adding the percentages accumulating. When they reached 80 per cent, they were to draw a line and see how many sizes were above the line and how many below.

They did this and found that there were eleven above and fifty-five below. In other words, 81 per cent, as I recall it, were using eleven sizes of brick, and the other 19 per cent, the fifty-five sizes, were thin and scattered. The idea was to concentrate on eleven sizes. The manufacturers voted to do it.

So far the work was theirs entirely; we did nothing at all except suggest certain methods and mechanical means of getting those figures. We made no suggestions as to what they should do about it. The suggestion as to what they ought to do was perfectly apparent when they had made the survey. The men voted unanimously to consider the eleven sizes as standard.

Then our part of the job began. We called in and arranged a general conference in Washington. We called in representatives of the paving brick manufacturers who formulated this program, the committee representatives of state and municipal highways de-

partments, paving brick dealers, all sorts of building material dealers, in fact everybody we could locate that was in any way interested in the production or distribution or use of vitrified paving brick.

We put the proposition up to them, showed them the survey, showed them the exact facts. It resulted in a unanimous vote of the general conference in favor of adopting the eleven sizes of paving brick as standard for use in the United States, not necessarily eliminating from production the other fifty-five sizes, but regarding them as special. So much for the general conference.

I wasn't at the conference but I was told that there was a group perhaps the size of this, representing all the interests. Immediately following the conference, we wrote up a rather detailed report of the proceedings, something like the minutes of a meeting, saying what had been recommended, what the vote was, and what the discussion was. We sent that broadcast to everyone who had been invited to the conference and everyone whose name had been suggested in the meantime. We made a complete circulation of the industry. When I say the entire industry, in respect to this job or any other job, I mean producer, distributor and consumer. That is what I mean when I say the whole industry.

We sent out a detailed report of this conference through the entire industry, with an acceptance blank which read: "The undersigned, as producer, distributor or user of this particular commodity, endorses these eleven sizes, called the simplified list of sizes, and will use his best efforts to adhere to that list as a standard practice." That didn't mean that he swore or made a contract that he would never make anything else, or buy or sell, deal or distribute any other sizes except those on that list, but he would regard these as the standards.

That procedure insures three things:

First, a true concensus of opinion in the industry.

Second, which is very important, legality of the action taken. In other words, everybody has his day in court. We circularize everybody remotely concerned in the industry, so far as we can get at them and learn their name. If there is any opposition to develop, we try to spike it in advance. When a general conference has been held, we get a pretty fair representation of the entire industry and follow up with this written acceptance. Unless we get proper acceptance from producers representing 80 per cent of the body and a satisfactory percentage of the distributors and users, which is usually as high as that, we don't consider it a success and do not publish it. But when we get that percentage of acceptance, we publish the project as a simplified practice recommendation of the Department of Commerce. It bears the signature of the Secretary of Commerce and is in the form of a published booklet. And that booklet in turn is sent broadcast to the entire industry. It pretty well clinches the idea in the minds of everybody concerned that there is a national standard and it has been adopted in a certain way.

The booklet recites the history of the project again, as the general conference report, mentions the names of all the people concerned, tells what it is about and why it was necessary, and what was adopted.

There is a third very important feature. A standard isn't any good unless it is used. You can work up the most equitable standards in the world and write them into a book and leave it there, and it doesn't do any good. It must be sold.

It won't stay sold unless it is kept up to date. You can't take a set of standards and engrave them on tablets of bronze and expect them to remain good, because they don't. New methods and new workmanship and materials come in. All sorts of materials have obsolescence, which is tremendously high.

Consequently when we hold a general conference and adopt a certain simplified list, or the industry adopts it, of materials or sizes or commodities, we provide that that shall remain in force and effect for one year from the effective date agreed upon in the conference. Suppose we hold a conference here today. We agree on a reduced list of crushed stone sizes, and you all by unanimous agreement say that should go into effect on March 1. It would be in effect from March 1, 1930, to March 1, 1931.

A committee is appointed, consisting of representative manufacturers and distributors and users and engineers and others, and that committee is expansive to the project. A year from the effective date in this hypothetical case, March 1, 1931, that committee will hold a meeting. We would have surveyed the adherence to their simplified list of sizes, and if we find the adherence which was originally 80 per cent or more has dropped below 80 per cent, we don't assume that somebody is arbitrarily for his own purposes trying to jump the reservation. We assume there is something wrong with the recommendation itself, because if it were absolutely sound it would be adhered to. Consequently we try to find what is wrong with it.

As a matter of history and not theory, out of 115 simplified practice recommendations we put through

in all industries, I should say about three or four have shown a decrease in adherence during the first year. Another peculiar thing is that in all but say a dozen of those in that lot, a resurvey has shown almost a repetition of the condition that originally obtained.

To go back to the paving brick proposition, they did that stunt. One year from the first effective date they resurveyed the situation in respect to the eleven standard sizes to see whether they represented eighty per cent of the production. They found they represented over 90 per cent of the production. They analyzed further and found that three of those eleven sizes represented over 80 per cent. The standards committee recommended the elimination of four, leaving only seven. That was accepted by the industry. The following year one more was taken off, and the following year one more was taken off, until the number got down to four.

At the last conference some revision had taken place in the country and it was obvious that a new size or shape ought to be added, and it was added, so now it remains at five. That procedure has been the same in every project. The details vary, but the principles are just the same.

One very common question that comes up when a simplification job is being considered is this: A manufacturer producer of a commodity will say, "That is very fine, but I have to make what my customers want. If I agree to consider these as my standards, and a company offers me a big order for something else, what am I to do about it?"

In the first place, in the Division we have no authority to make him conform to the standards. If it isn't to his interest to do so, he probably won't do it. But it ought to be to his interest to do so.

The way we, as sales agents for the producers, try to make it worth while is this: We go behind the producing end of the business to the consuming end. We try to sell the idea, on a sound, logical basis, to the consumer, and show him, "Here, you have been buying through the nose like everybody else. If there is a huge line of sizes and types and styles of this product, some of them sell in enormous quantities, and some in small quantities, and you know perfectly well that the big ones are bearing the load of overhead and so forth on the small ones which are not profitable."

We have been peculiarly successful in doing that. We had a case that was very pointed and which is fresh in my mind, which will show you how that works. It is not of your particular field, but the principle is just the same. It is a case of cartridge fuses. We found that out of a list of sixty cartridge fuses, rated from one ampere to 60 amperes, seven were carrying about 80 per cent of the total demand. The fuse manufacturers were anxious to cut down and make those seven standard.

They realized that they couldn't ask more for the nine ampere fuse than for the ten ampere fuse. On the other hand, they knew perfectly well that they were making ten million of the ten ampere fuses and one hundred thousand of the nine ampere fuses, the nine ampere fuses costing more than the ten ampere fuses.

One particular concern objected to eliminating one size of fuse which I believe was the eight ampere. They said they couldn't eliminate that, that one of their biggest customers demanded that size of fuse and it constituted 15 per cent of their sales. We told the manufacturer that it only constituted about one-third to a half of one per cent of the national sales, even though it was fifteen per cent of their sales.

We asked them who their big customer was. We had a lot of difficulty in finding out who the big customer was, but we finally found out. The customer was located not more than seventy miles from this room. One of the men went to the customer and said, "Do you have to use an eight ampere fuse?"

He said, "We can buy an eight ampere cheaper than a larger one, and we like it."

Our man said, "How about a ten ampere? Would that do?"

"Certainly," he said, "but it costs more."

"Suppose it didn't, could you use it?"

"Of course, we would be glad to."

We went back and told the manufacturer that. He said that was all right. He would just as soon cut it out if it was all right with the individual customer. We had to take a good many individual cases and go behind and build a back fire under the customers and sometimes under the distributors as well, not in the way of an arbitrary attempt to enforce something not to their interests but to try to make them see something that is to their interest.

Whether that particular kind of activity is applicable to your kind of problem is a thing you can determine better than I. I have read the report of your committee on the standardization of commercial sizes of crushed stone. I see that you listed about eighty-three sizes, taking account of all the different sizes and types of screens and so on. Your committee proposes to establish a standard list of nine sizes measured

(*Continued on page* 28)

The Crushed Stone Journal

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J. R. BOYD, Editor

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A Difficult Task Well Done

IN the belief that the National Crushed Stone Association was not fully discharging its obligation to the crushed stone industry unless it actively undertook to remove from the industry the abuses and uneconomical practices which retard its natural and normal development, Mr. Graves upon retiring as President at the beginning of last year recommended "that before this Convention (reference is made to the Cleveland Convention) is concluded, a committee on trade practice be elected or appointed, with full authority to sit in conference with a representative of the Federal Trade Commission and one from the United States Chamber of Commerce, both of these bodies being willing to so cooperate, for the purpose of developing a code of trade practice applicable to our industry and to submit the code agreed upon to the Board of Directors at its summer meeting for approval, and thence to the membership at its next convention for final and absolute ratification, modification or rejection."

In accordance with this suggestion, immediately following the Cleveland Convention, President Wise appointed a Trade Practice Committee and asked Mr. Graves to act as its chairman. It was with very real reluctance that he finally consented to undertake this very important work. Associated with Mr. Graves as the other members of the committee were H. E. Bair, H. E. Rodes, T. I. Weston, E. J. Krause, O. P. Chamberlain and W. L. Sporborg.

Two meetings of this committee were held during the peak of the operating season at both of which the attendance was exceptionally good, necessitating on the part of those present real personal sacrifice in the interests of Association business.

How well this committee succeeded in the work which it undertook at the beginning of last year need hardly be commented upon as the tangible evidence of its accomplishments is given in an article elsewhere in this issue of the *Journal*.

There are few satisfactions which give more real enjoyment than the realization of a difficult task well done. The members of the Committee on Trade Practice had an exceptionally arduous function to perform and did it in a most painstaking and thorough manner. They should indeed be proud of the service which they have thus rendered the industry as we take pride in the fact that we have men in our Association who will give so generously of their time and thought to advance the interests of the industry for its common good.

Ohio to Expend $35,000,000 for Highways

OHIO'S highway construction program for 1930 will amount to $35,000,000, according to the director of highways, Robert N. Waid.

The State will spend $14,000,000 for construction and $13,000,000 for additions and betterments, maintenance and repairs, in addition to $3,000,000 of Federal aid money. Counties will spend $3,000,000 and the railroads' share of grade crossing elimination will be $2,000,000.

Mr. Waid said he will receive bids January 28 for 536,191 lineal feet of guard rail on State highways, the estimated cost being $331,806.

The State architect, T. Ralph Ridley, announced that contracts for construction to cost approximately $517,000 will be awarded during February.

Report of Committee on Mechanical Elimination of Dust

FRED O. EARNSHAW, *Chairman*

IN the early part of his administration, President Wise appointed a committee to report on the "Mechanical Elimination of Dust from Crushed Stone."

What constitutes "dust" in or upon crushed stone? This appears to be a question of somewhat varied opinion and has been with us many years. Until recently it has received little or no attention on the part of most crushed stone producers. Many of our competitors producing gravel use hydraulic dredges, sucking the aggregate from rivers, lakes and water-filled pits. The very nature of this operation makes it not only possible but compulsory to produce aggregate free from dust. Our slag competitors produce material whose physical condition is such that they do not have to contend with a fine pasty dust, which clings to the average crushed stone produced in damp weather.

In an article written some time ago, Mr. Goldbeck, Director of our Bureau of Engineering, made reference to the A. S. T. M. method for determining the percentage of dust, and stated that dust particles determined in this way are very small and approximately all pass an 80 mesh sieve.

Mr. Mattimore of the Bureau of Tests of the Pennsylvania State Highway Department in his 1929 specifications for gradation of crushed stone states that one-half of one per cent of dust passing a 20 mesh sieve is the maximum allowable. He considers plus 20 mesh material as fine aggregate.

In connection with bituminous construction, dust coating is distinctly harmful. In one case it was brought out by the Engineer of Tests of Virginia, that dust coated stone used with cut-back asphalt for the manufacture of cold patch material, resulted in the complete disappearance of the bituminous material from the stone after a heavy rain. His contention is that the dust prevented proper adhesion of the bituminous material which was readily washed away.

It is also well known that for bituminous macadam, dust coated stone is harmful. The bituminous material is merely poured on the stone and there is no opportunity for it to do other than to cover the dust coating. Proper adhesion between the aggregate then is virtually impossible.

There is still some doubt in the minds of many engineers as to the effect of a high percentage of dust in the coarse aggregate when used in Portland cement concrete, due primarily to a feeling that this dust will form a weak surface layer which will later scale off owing to the action of traffic and the weather.

In certain states, the percentage of dust in the coarse aggregate has been limited to 1 or 1-¼ per cent by weight. Cleanliness of stone has been discussed with a number of producers and also with a number of engineers and there is no question in our minds, that engineers are decidedly in favor of having clean stone, free from dust coatings.

What happens to the dust in crushed stone, during the ordinary procedure of dry screening and sizing? There is a cloud of dust arising in the screen room, caused by the action of the screens and movements of the stone thereon. There is also a very small percentage of coarser dust or fine screenings which seeps down into the bins, the fine dust eventually settling and coating the stone that is in the bin. This may not be the condition in all plants but nevertheless, in preparing crushed limestone, this condition, generally speaking prevails.

This dust that settles on the stone in the bins, is increased and later concentrated by the action of drawing the stone out of the bins into cars, where additional concentration and settling occurs to some extent.

This settling and concentrating of dust, can, and has been partially eliminated by the use of ventilating stacks and fans, which suck a great portion of the dust into the fan, where it can be spouted to convenient storage. This process of dust elimination requires considerable installation and is not 100 per cent effective. One of our large operators reports that as long as they continued to dry screen their stone, using various devices and expending thousands of dollars for systems of dry screening, *the dust still prevailed.*

When cars are loaded at the crusher on a still, dry day, there is a certain amount of chafing and chipping

(*Continued on page* 30)

Report of the Sub-Committee for Standardization of Commercial Sizes of Crushed Stone

(*Continued from page* 19)

nating these slight minor variations in size that a system of standard sizes is necessary. Another fact needs explaining, namely, that even though a large number of sizes may be designated as standard the producing plant does not have to be arranged to produce all of these sizes simultaneously. That is seldom necessary.

Your committee suggests the following commercial sizes as "Standard Sizes." These are most commonly used and other sizes which may be demanded from time to time might be known as "Special Sizes."

Suggested Standard Sizes for Crushed Stone

(Note: Stated at present in terms of round opening laboratory screens. If square openings are finally adopted, the present round opening sizes must be translated into their approximate square opening equivalents).

0-¼ in. Fine screenings for waterbound macadam, fine aggregates in concrete.

0-¾ in. Coarse screenings for waterbound macadam, aggregate for bituminous concrete.

¼-½ in. Fine dustless screenings for bituminous surface treatment, bituminous concrete, roofing.

¼-¾ in. Coarse dustless screenings for bituminous surface treatment, bituminous concrete, traffic bound roads, bituminous macadam, coarse aggregate in concrete building construction.

¼-1¼ in. Coarse graded bituminous concrete, Portland cement concrete, sheet asphalt binder, traffic bound construction, black base, concrete, building construction.

¼-2½ in. Coarse aggregate in concrete pavements, black base.

¾-1¼ in. Mixed-in-place bituminous concrete, binder for sheet asphalt, retread, bituminous surface treatment, choke material in macadam construction.

1¼-2½ in. Bituminous macadam, waterbound macadam, railroad ballast, black base sewage disposal.

2½-3½ or 4 in. Bituminous macadam, waterbound macadam, railroad ballast, sewage disposal.

All other sizes in addition to the above will be known as "Special sizes."

Standardization of Sizes by the Division of Simplified Practice, Bureau of Standards, United States Department of Commerce.

Your committee reminds the crushed stone industry that it alone cannot standardize the sizes it produces.

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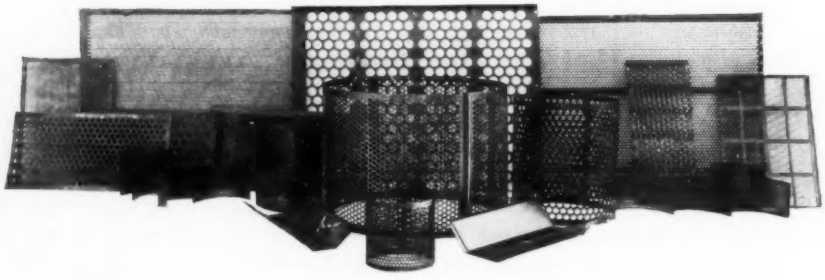

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Consumers are as much interested in a size standard as producers. Hence, standardization must ultimately be the outcome of cooperative effort on the part of both producers and consumers. Your industry can at present merely express its desires as to what kind of a size standard it thinks would be desirable from the producers' standpoint. The consumer is represented by various national technical organizations and he expresses his desires through the standard specifications of these organizations.

Finally, the various ideas thus expressed through these national bodies of consumers and producers must be brought into harmony before a size standard will become possible. Fortunately an agency already exists whose duty it is to harmonize and bring together the various bodies interested in simplification and standardization. This is the Division of Simplified Practice of the Bureau of Standards of the United States Department of Commerce. After we have progressed sufficiently far in our own efforts at standardization we shall then be in a position to make application to the Division of Simplified Practice to help formulate a set of standard sizes in cooperation with other interested agencies.

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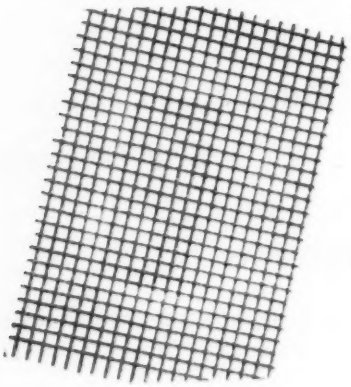

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High Bridge, New Jersey

Simplification in Industry
(*Continued from page* 23)

through laboratory round screens, as I understand. That would mean a 90 per cent cut in the sizes listed in the catalogue and sold by all of you.

Then there is the question of terminology. It varies a good deal in different parts of the country. There is the question of screen equipment. Some use round screens, some use square screens and some use rectangular screens. They are revolving and vibrating with all angles of slopes. It is hard to get any exact equivalent.

I might perhaps cite one case where we went through with a similar proposition in the case of high volatile bituminous coal that is handled and distributed over the American head of the Great Lakes. They had a similar problem. They didn't have as many sizes, but they had I think thirty-six sizes, screen sizes of coal, which were distributed out through the Northwest. They were anxious to cut them down.

They had no difficulty on agreeing on the size. They decided that six sizes, taking care of 90 per cent of the demands, were enough. It happened they were the same six sizes, which is not always true. Sometimes a group will say, "We can't cut down any more than we have." Each one cuts down to five or six, but they are a different five or six, and the situation is the same as if you had 50 or 60 sizes when you consider that you have ten producers possibly.

In the case of the coal proposition they agreed on the size immediately. Then the question of terminology came up. They encountered the same thing you do. In other words, terminology in different parts of the country differed. Some people wanted things designated by size. Some wanted them designated by a number or a letter indicating the size. Some wanted to use the size itself, either the top figure or the bottom or both. Some were in one order and some in another. There was no agreement on that. It seemed you couldn't reach an agreement on it.

There was the question of screen equipment. Everybody knows there is no exact equivalent between a round or square screen or either of them and a rectangular or bar screen. So they established what amounted to arbitrary equipment. They made the round screen the standard of measurement. They said the round 2½ shall be the equivalent, say to 3½ square or 2½ bar. Their engineers worked over that for some time, and determined as closely as they could what these equivalents were after handling a ton of coal over the different screens.

They said, strangely enough in their reports, "It isn't possible to get the exact equivalent between these screens, but we have to have something, and let's take this."

I see your committee is working along the same lines. On the question of terminology, I have a suggestion to make. It is a question of reaching an agreement among yourselves. All I can say is this: We have had a good deal of experience in connection with some similar products, particularly the coal matter. We have one up now that will undoubtedly interest you gentlemen on gravel situations, in sizes. We have had several on slag. None of them have got very far. They are in the formative stage, but we have had a lot of experience in handling other products and getting them sold to the people the producers have to do with.

The first thing that is essential is for the producers to reach an agreement and form a united front. We can sell one product but we can't sell five or six. Our Division is nothing more than a service station. We are not out after business. We don't initiate production; we only act on the suggestion of some responsible group in the industry itself. It may be a producer group or a consumer group or a distributor group or more than one group. But when we are asked to undertake a project of this sort, we will do our best with it.

We are a service station and a clearing house. We don't attempt to tell people how to run their business any more than the clearing house tries to tell the bank how to run its business. But we feel that we have performed a fairly useful service. I won't go into detail on some of the projects we have handled, because they don't directly concern an industry of this character. But we are there to perform a certain definite service. We have gained in eight years a certain experience, not a theory but a practice, something that works, that is producing results and has produced results. It is there for you people to use, and we hope you will take all the advantage you can.

Through Mr. Goldbeck, who has been in pretty close touch with us right along, you can get from us anything we at any time have. When you people are ready to go ahead with this project, on which I think you have made considerable progress already, Mr. Goldbeck will undoubtedly get in touch with us and we will give you the services of our division or any Department of Commerce division.

From reading the report and my first-hand knowledge of the business, I think you can get somewhere, and I hope you will let me help you.

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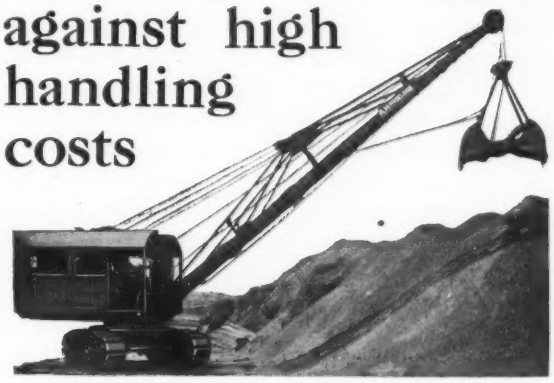

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Report of Committee on the Mechanical Elimination of Dust

(*Continued from page* 25)

taking place, while the stone is being drawn from bin gate to car. Several cars are loaded: they look good as they stand and the material unquestionably would pass the engineer's requirements if it were used at once. Unfortunatly for a great many producers, this stone is shipped great distances, sometimes being a week in transit. During the summer and early fall months, it is often subjected to one or more severe rain storms, with the result that the small amount of dust that was unnoticed on the stone at the time of loading has now been concentrated and lies just below the surface, the depth varying with the severity of the rain. Thus, the dust, at first unnoticed has been accumulated as a bad coating on a layer of stone a few inches thick and it presents an unpleasant and unsatisfactory appearance. Stone arriving at destination in this condition unquestionably is rejected.

Conditions similar to this just described, have been experienced by members of this Committee and the concensus of opinion is, that wherever and whenever possible, consistent with reasonable cost, aggregates for concrete and highway construction should be washed.

There are several methods of procedure in the washing of crushed stone. In some cases due to the physical condition of the quarry or pit, it is necessary to install an extensive scrubbing, immersing and rinsing plant to obtain a uniformly clean aggregate.

For the average open-pit quarry (and most limestone mines) the practice of dry screening and sizing of stone first, then subjecting it to a thorough rinsing is adequate.

This latter is accomplished in several ways, one of which is by the use of a revolving screen, preferably an open end screen with a substantial fine mesh wire jacket and a 4 in. pipe suspended in the center the full length of screen. This pipe is perforated with holes of approximately 1/8 inch in diameter, closely spaced and in such position that the spray will, for the most part strike the stone at the highest point as it follows the circle of the screen.

Another very efficient method, but one perhaps not having as large a capacity as a revolving screen, is the use of a vibrating or shaker screen. The degree of pitch can best be determined for each individual installation. This screen is sprayed from a series of pipes with perforated holes, the position of the holes being such as to direct the streams of water against the flow of stone over the screen.

As one of our largest producers states, the tendency among engineers is toward specifying washed material and there are so many things in favor of washing against nothing to its disfavor, that we do not believe any other method of preparing stone should be followed, unless water for washing is entirely lacking.

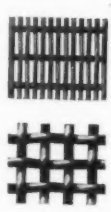
Washing stone has had the effect in some cases, of changing specifications, allowing more of the 3/16 to 3/8 in. size to be incorporated with the coarser aggregates. The consequence has been a reduction in voids, which results in a lower cement factor and cheaper concrete. This helps in our competition with rounded coarse aggregates and is of great benefit to the average producer by lessening the amount of screenings he produces.

The cost of this method of eliminating dust and coated aggregate has been reported by several of the larger producers as being practically nil.

It is a fact, that in some plants the washing of crushed stone, instead of increasing the cost has actually decreased it, for regardless of weather or pit conditions, the producer who is equipped to properly wash or rinse his stone can operate day in and day out, and produce a uniform, clean aggregate, avoiding the piling up of orders due to a shut down of the plant because of weather conditions.

With the present trend of thought among engineers and producers, it appears that the time has arrived when all producers should be seriously considering the best and most efficient methods adaptable to his operating conditions for the elimination of dust.

HUM-MER *Electric* SCREEN



Screens from coarsest to the finest materials either wet or dry

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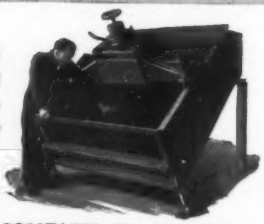

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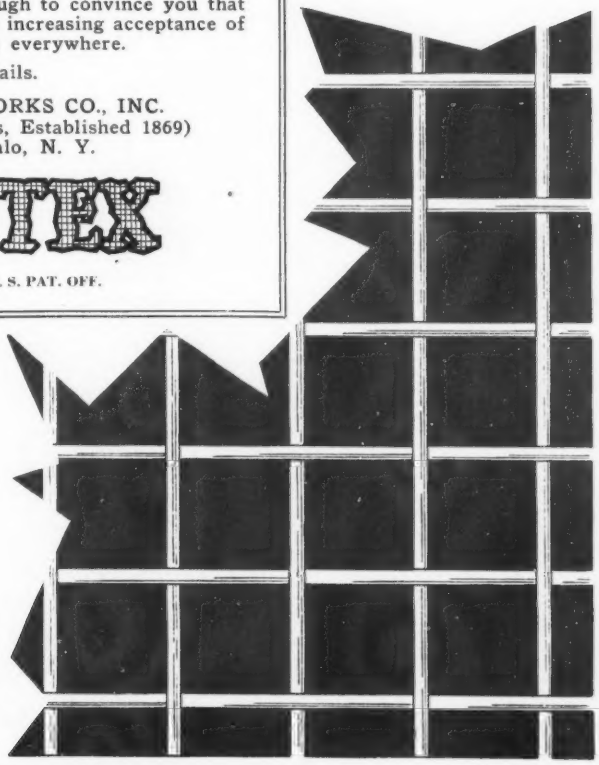

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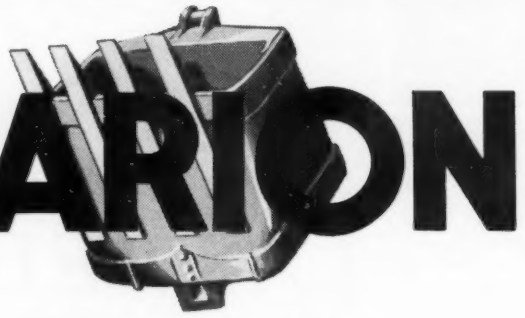

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